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Amendments to the claims

The following listing of claims replaces all previous listings of claims.

1. (Currently amended) A library of compounds, wherein each compound in the library is bound to an individual support, each support having associated therewith more than one population of semiconductor nanocrystals, each population having a distinct characteristic spectral emission, wherein each compound is attached to the support during a synthesis sequence,

wherein each nanocrystal comprises a Group II-VI semiconductor, a Group III-V semiconductor, or a Group IV semiconductor selected from a group consisting of ZnS, ZnSe, ZnTe, CdS, CdSe, CdTe, ~~HgS, HgSe, HgTe,~~ MgTe, GaN, GaP, GaAs, GaSb, ~~InN,~~ InP, InAs, InSb, ~~AlAs,~~ AlP, AlSb, AlS, Ge, or Si, ~~or Pb.~~

2. (Original) The library of claim 1, wherein each nanocrystal member comprises:
a core comprising a first semiconductor material; and
a shell layer overcoating the core, the shell comprising a second semiconductor material having a band gap greater than that of the core,
wherein the first semiconductor material and the second semiconductor material are the same or different.

3. (Original) The library of claim 1, wherein the characteristic spectral emission is a wavelength of emitted light, an intensity of emitted light, or both a wavelength and an intensity of emitted light.

Claims 4-11. (Canceled)

12. (Original) The library of claim 1, wherein each individual support is a bead, a pellet, a disk, a capillary, a hollow fiber, a needle, a solid fiber, a cellulose bead, a pore-glass bead, a silica gel, a polystyrene beads optionally cross-linked with divinylbenzene, a grafted copoly bead, a poly-acrylamide bead, a latex bead, a dimethylacrylamide bead optionally cross-

linked with N,N'-bis-acryloyl ethylene diamine, a glass particle coated with a hydrophobic polymer, or a low molecular weight non-cross-linked polystyrene.

13. (Original) The library of claim 1, wherein at least one compound in the library is a polypeptide, an oligonucleotide, or a sugar moiety.

Claims 14-25. (Canceled)

26. (Currently amended) A chemical library comprising a plurality of member chemicals, wherein each member chemical is bound to a support, each support having associated therewith more than one population of semiconductor nanocrystals, each population having a distinct characteristic spectral emission, wherein each compound is attached to the support during a synthesis sequence,

wherein each nanocrystal comprises a Group II-VI semiconductor, a Group III-V semiconductor, or a Group IV semiconductor selected from a group consisting of ZnS, ZnSe, ZnTe, CdS, CdSe, CdTe, ~~HgS, HgSe, HgTe~~, MgTe, GaN, GaP, GaAs, GaSb, ~~InN~~, InP, InAs, InSb, ~~AlAs~~, AlP, AlSb, AlS, Ge, or Si, ~~or Pb~~.

27. (Original) The library of claim 26, wherein at least one member of the library is a polypeptide.

Claims 28-30. (Canceled)

31. (Original) The library of claim 26, wherein each nanocrystal comprises:
a core comprising a first semiconductor material; and
a shell layer overcoating the core, the shell comprising a second semiconductor material having a band gap greater than that of the core,
wherein the first semiconductor material and the second semiconductor material are the same or different.

32. (Original) The library of claim 26, wherein the characteristic spectral emission is a wavelength of emitted light, an intensity of emitted light, or both a wavelength and an intensity of emitted light.

33. (Original) The library of claim 26, wherein the each support is a bead, a pellet, a disk, a capillary, a hollow fiber, a needle, a solid fiber, a cellulose bead, a pore-glass bead, a silica gel, a polystyrene beads optionally cross-linked with divinylbenzene, a grafted co-poly bead, a poly-acrylamide bead, a latex bead, a dimethylacrylamide bead optionally cross-linked with N,N'-bis-acryloyl ethylene diamine, a glass particle coated with a hydrophobic polymer, or a low molecular weight non-cross-linked polystyrene.

Claims 34-36. (Canceled)

37. (Currently amended) A library of polypeptides comprising a plurality of polypeptides, wherein each polypeptide in the library is bound to an individual support, each support having associated therewith more population of semiconductor nanocrystals, each population having a distinct characteristic spectral emission, wherein each compound is attached to the support during a synthesis sequence,

and wherein each nanocrystal comprises a Group II-VI semiconductor, a Group III-V semiconductor, or a Group IV semiconductor selected from a group consisting of ZnS, ZnSe, ZnTe, CdS, CdSe, CdTe, ~~HgS, HgSe, HgTe~~, MgTe, GaN, GaP, GaAs, GaSb, ~~InN, InP, InAs, InSb, AlAs, AlP, AlSb, AlS, Ge, or Si, or Pb.~~

38. (Original) The library of claim 37, wherein each nanocrystal comprises:
a core comprising a first semiconductor material; and
a shell layer overcoating the core, the shell comprising a second semiconductor material having a band gap greater than that of the core,
wherein the first semiconductor material and the second semiconductor material are the same or different.

39. (Original) The library of claim 37, wherein the characteristic spectral emission is a wavelength of emitted light, an intensity of emitted light, or both a wavelength and an intensity of emitted light.